

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>						
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	18114	35566	54943	55077	53798	60347	64948	56803	Continuing	Continuing
D134 Objective Individual Combat Weapon Engineering Development (OICW)	0	0	14813	26047	27713	22432	19525	15157	1000	126687
D284 Multipurpose Individual Munition	3936	16591	17093	10374	0	0	0	0	0	66866
D613 Mortar Systems	9369	9140	10181	0	6792	7872	30459	30804	Continuing	Continuing
D695 XM982 Projectile	3382	5861	10387	15594	16106	23327	0	0	0	75610
D705 Hydra 70 Engineering and Manufacturing Development	0	3974	0	0	0	0	0	0	0	3974
DAS1 Small Arms Improvement	1427	0	2469	3062	3187	6716	14964	10842	Continuing	Continuing
<p><b>A. <u>Mission Description and Budget Item Justification:</u></b> Provides for engineering development of weapons and munitions systems. The Multi-Purpose Individual Munition (MPIM) provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The howitzer ammunition effort supports development of ammunition for the M119A1 Howitzer. The mortar systems effort supports development of the Mortar Fire Control System (MFCS). The MFCS is a revolutionary improvement in mortar capability, seamlessly linking mortar fires in the future digital battlefield. Additionally, it funds development of a low cost 60mm training round in FY2000 and the Precision Guided Mortar Munition in FY 02 – FY05. The XM982 extended range Dual Purpose Improved Conventional Munition (DPICM) is an extended range 155mm artillery projectile. It will extend the range of the M198, M190A5, M190A6, 155mm Paladin and the lightweight Howitzer to approximately 37 kilometers, with the Modular Artillery Charge System (MACS) in Crusader extending the range to 47 kilometers. The Hydra 70 EMD program will accomplish airworthiness testing of the Hydra 70 rocket motor under various flight conditions. The small arms improvement program develops technology to enhance lethality, target acquisition, fire control, training effectiveness, and /or reliability for small arms weapon systems. This project develops a universal mounting bracket for the MK19-3 Grenade Machine Gun.</p>										

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**5 - Engineering and Manufacturing Development**PE NUMBER AND TITLE  
**0604802A Weapons and Munitions - Engineering Development**

<b>B. Program Change Summary</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget ( <u>FY 1999 PB</u> )	14611	37725	31115	30742
Appropriated Value	15077	35725		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-466	-159		
b. SBIR / STTR	-366			
c. Omnibus or Other Above Threshold Reductions	-120			
d. Below Threshold Reprogramming	+3989			
e. Rescissions				
Adjustments to Budget Years Since <u>FY 1999 PB</u>			+23828	+24335
Current Budget Submit ( <u>FY 2000 / 2001 PB</u> )	18114	35566	54943	55077

Change Summary Explanation: FY 1998: Funds reprogrammed from PE 64854A/D505 to project D695 to accelerate the XM982 program (+2800).  
FY 2000: Funds added for development and test of a low-cost 60mm full range training round (+10300). Funds added to initiate development efforts on the OICW (+13200).  
FY 2001: Funds added for continued development of OICW (+24600).

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BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>D134</b>		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D134 Objective Individual Combat Weapon Engineering Development (OICW)	0	0	14813	26047	27713	22432	19525	15157	1000	126687
<p><b>A. Mission Description and Budget Item Justification:</b> The Objective Individual Combat Weapon (OICW) represents the next generation individual soldier's weapon, replacing selected M16 rifles, the M4 series carbine, the rifle-mounted M203 40mm grenade launcher as well as night vision devices and laser range- finders. The OICW will provide the soldier with significant increases in individual weapon performance that will result in an overall improvement in combat effectiveness to include hit probability, range, lethality, cost per kill, combat load, man/machine interface and sustainability and logistics.</p> <p><b>FY 1998 Accomplishments:</b> Project not funded in FY 1998</p> <p><b>FY 1999 Planned Program:</b> Project not funded in FY 1999</p> <p><b>FY 2000 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 7343 Contract: Ammunition and fuze development</li> <li>• 7470 Contract: Weapon and fire control development</li> </ul> <p>Total 14813</p> <p><b>FY 2001 Planned Program:</b></p> <ul style="list-style-type: none"> <li>13596 Contract: Ammunition and fuze development</li> <li>12451 Contract: Weapon and fire control development</li> </ul> <p>Total 26047</p>										
<b>B. Other Program Funding Summary</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
PAA, SSN E92000 Objective Family of Weapons							2456	12267	189000	203723
<p><b>C. Acquisition Strategy:</b> The OICW prototype system will have been demonstrated in the Advanced Technology Demonstration (ATD) in FY 1999. Based on the results of the ATD and requirements of the final Operational Requirements document (ORD) for the OICW, appropriate changes will be made to contractual requirements for engineering and manufacturing development and first production buy of the OICW. Non-conventional contracting strategies such as integrated contractor-government product teaming and various contract incentives will be examined for implementation. Integrated Product and Process Design (IPPD) efforts initiated in the previous ATD</p>										
Project D134		Page 3 of 26 Pages				Exhibit R-2A (PE 0604802A)				

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<p>phase of this program will reduce work and streamline activities in EMD. The IPPD philosophy will be continued in EMD. The performance evaluation portion of the program will include live fire tests and an extensive amount of simulation activities. A complete technical data package, including quality assurance provision (QAP) for acceptance of hardware, will be deliverable under the contract, along with delivery of pre-production prototypes. The first production buy will prove out the contractor's Technical Data Package and hardware. Type classification will take place in FY2005. FY06 RDT&amp;E will support OICW pre-planned product improvement efforts.</p>																																																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>D. Schedule Profile</b></th> <th><u>FY 1998</u></th> <th><u>FY 1999</u></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> </tr> </thead> <tbody> <tr> <td>Contract Preparation</td> <td></td> <td></td> <td>1-2Qtr</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ammo/Fuze Development</td> <td></td> <td></td> <td>3-4Qtr</td> <td>1-4Qtr</td> <td>1-2Qtr</td> <td>3-4Qtr</td> <td>1-2Qtr</td> <td></td> </tr> <tr> <td>Weapon/Fire Control Development</td> <td></td> <td></td> <td>3-4Qtr</td> <td>1-4Qtr</td> <td>1-2Qtr</td> <td>3-4Qtr</td> <td>1-2Qtr</td> <td></td> </tr> <tr> <td>Quality Design &amp; Build</td> <td></td> <td></td> <td></td> <td></td> <td>3-4Qtr</td> <td>1-2Qtr</td> <td>1-2Qtr</td> <td></td> </tr> <tr> <td>Developmental Testing &amp; Assessment</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3-4Qtr</td> <td>1-3Qtr</td> <td></td> </tr> <tr> <td>Operational Testing &amp; Assessment</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4Qtr</td> <td>1-3Qtr</td> </tr> <tr> <td>Milestone III</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4Qtr</td> </tr> </tbody> </table>									<b>D. Schedule Profile</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	Contract Preparation			1-2Qtr						Ammo/Fuze Development			3-4Qtr	1-4Qtr	1-2Qtr	3-4Qtr	1-2Qtr		Weapon/Fire Control Development			3-4Qtr	1-4Qtr	1-2Qtr	3-4Qtr	1-2Qtr		Quality Design & Build					3-4Qtr	1-2Qtr	1-2Qtr		Developmental Testing & Assessment						3-4Qtr	1-3Qtr		Operational Testing & Assessment							4Qtr	1-3Qtr	Milestone III								4Qtr
<b>D. Schedule Profile</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>																																																																								
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Project D134			Page 4 of 26 Pages			Exhibit R-2A (PE 0604802A)																																																																										

## UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>					PROJECT <b>D134</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Primary System Contract	FP	Contractor TBD				10928	TBD	19941	TBD	55485		
Subtotal Product Development:						10928		19941		55485		
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Development	MIPR	Multiple				2062	Multiple	2062	Multiple	8956	13080	
b. Integrated Logistics Spt	MIPR	Multiple				100		100		400	600	
c. Training and Simulations	MIPR	Multiple				778		2964		12152	15894	
Subtotal Support Costs:						2940		5126		21508	29574	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. DT	MIPR	TECOM								3115	3115	
b. OT	MIPR	OPTEC								1335	1335	
Subtotal Test and Evaluation:										4450	4450	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PGM Management	ALLOT	PM Small Arms				925		960		4304	6189	
b. Travel						20		20		80	120	
Subtotal Management Services:						945		980		4384	6309	
			Total PYs Cost	<u>FY 1999</u> Cost		<u>FY 2000</u> Cost		<u>FY 2001</u> Cost		Cost To Complete	Total Cost	Target Value of Contract
Project Total Cost:				0		14813		26047		85827	126687	

Project D134

Page 5 of 26 Pages

Exhibit R-3 (PE 0604802A)

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>D284</b>		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D284 Multipurpose Individual Munition	3936	16591	17093	10374	0	0	0	0	0	66866
<p><b>A. <u>Mission Description and Budget Item Justification:</u></b> Provides for the engineering manufacturing development (EMD) of a lightweight, shoulder fired, multiple purpose weapon. Provides the infantry with a fire and forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multi-Purpose Individual Munition/Short Range Anti-Tank Weapon (MPIM/SRAW) is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for close battle. It is more versatile than the AT4 system because it can be fired from enclosures and defeat bunkers and various field fortifications. This system will have tremendously increased lethality over the AT4 and will be multiple targets capable. System design will allow for growth, service life extension and technology insertion to support the U. S. Army mission of crisis response to regionally based threats. The Army and U. S. Marine Corps have signed a memorandum of agreement for a horizontal technology integration effort utilizing the USMC SRAW flight module/launcher as the carrier for the MPIM warhead.</p> <p><b>FY 1998 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>• 1025 Phase II EMD contract</li> <li>• 1205 Conducted system level analysis</li> <li>• 700 Initiated procurement of range support hardware for pre-production test (PPT) flights</li> <li>• 606 Supported preliminary design review (PDR)</li> <li>• 400 Supported early user demonstration (EUD)</li> </ul> <p>Total 3936</p> <p><b>FY 1999 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 13345 Phase II EMD contract, development, fabrication, and qualification of the MPIM/SRAW system</li> <li>• 955 Twenty missiles for PPT</li> <li>• 450 Testing PPT, warhead section and missile flight testing</li> <li>• 705 Systems engineering requirements generation and system level trade studies</li> <li>• 255 Warhead design, development and trade studies</li> <li>• 290 Safe and Arm (grenade S&amp;A design, development and trade studies)</li> <li>• 268 Flight Module risk analysis, design verification and trade studies</li> <li>• 323 Program Management administration</li> </ul> <p>Total 16591</p>										
Project D284			Page 6 of 26 Pages			Exhibit R-2A (PE 0604802A)				

## UNCLASSIFIED

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<b>FY 2000 Planned Program:</b> <ul style="list-style-type: none"> <li>• 11561 Phase II EMD contract, development, fabrication, qualification of the MPIM/SRAW system</li> <li>• 2339 Fifty missiles for preproduction qualification test (PPQT)</li> <li>• 930 Testing – (PPQT) (warhead and missile flight testing)</li> <li>• 1136 Systems engineering requirements generation and system level trade studies</li> <li>• 145 Warhead design, development and trade studies</li> <li>• 90 Safe and Arm (grenade S&amp;A design, development and trade studies)</li> <li>• 143 Flight module risk analysis, design verification and trade studies</li> <li>• 749 Program management administration</li> </ul> <p>Total 17093</p>												
<b>FY 2001 Planned Program:</b> <ul style="list-style-type: none"> <li>• 1583 Phase II EMD contract, fabrication, and qualification of the MPIM/SRAW system</li> <li>• 4917 Missiles for initial operational test and evaluation (IOTE) (103 missiles as test articles)</li> <li>• 1580 Testing- PPQT(warhead and missile flight testing)</li> <li>• 1296 Systems engineering requirements generation and system level trade studies</li> <li>• 145 Warhead design, development and trade studies</li> <li>• 75 Safe and Arm (grenade S&amp;A design, development and trade studies)</li> <li>• 143 Flight module risk analysis, design verification and trade studies</li> <li>• 635 Program management administration</li> </ul> <p>Total 10374</p>												
<b>B. Other Program Funding Summary</b>			<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
Missile Procurement, Army, SSN C09100 (Multi-Purpose Individual Munition)			0	0	0	5684	20549	23303	47799	49666		147001
<b>C. Acquisition Strategy:</b> The MPIM/SRAW is a 65-month two phase EMD program which will leverage off the USMC 42-month SRAW EMD contract awarded in June 1994 and the 18-month U. S. Army technology demonstration MPIM/SRAW contract awarded in January 1995. The MPIM/SRAW EMD Phase 1 contract (18 month risk mitigation effort) was awarded in October 1996 with an EMD Phase 2 (maturation) contract (option) award in May 1998. FY99 funding will support PPT and preparation for CDR. FY 00/01 funding will support completion of systems qualifications and maturation in support of Milestone III in FY02.												
Project D284			Page 7 of 26 Pages				Exhibit R-2A (PE 0604802A)					

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DATE

February 1999

BUDGET ACTIVITY

**5 - Engineering and Manufacturing Development**

PE NUMBER AND TITLE

**0604802A Weapons and Munitions - Engineering  
Development**

PROJECT

**D284**

<b>D. Schedule Profile</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Complete telemetry missile flight test	2Q*							
Corporate/government Phase I reviews	2Q*							
Exercise Phase II option	3Q*							
Complete EUD test		1Q*						
Conduct PDR		2Q						
Complete PPT			1Q					
Conduct CDR			2Q					
Initiate PPQT			2Q					
Conduct PRR				3Q				
Complete PPQT				4Q				
Complete IOTE					2Q			

\*Completed milestone



## UNCLASSIFIED

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BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>					PROJECT <b>D284</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	
a. Contract (EMD Phase I)	SS/CPIF	Lockheed Martin, Orlando (EMD Phase I)	7263						7263		7263	
b. Contract (EMD Phase II)	SS/CPAF	Lockheed Martin Orlando (EMD Phase II)	8137	14300	NOV98	13500	NOV99	4900	40837		40837	
c. Award Fee						400		1600	2000		2000	
Subtotal Product Development:			15400	14300		13900		6500	50100		50100	
II. Support Costs: Not applicable												
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TECOM: APG	1095	RTTC,RSA	1273	922		880		880			3955	
b. Operational evaluation Command	MIPR	ALEX. VA.		12		071		695			778	
Subtotal Test and Evaluation:			1273	934		951		1575			4733	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PM MPIM	INHOUSE	AMCOM,RSA	6135	1357		2242		2299			12033	
b. Congressional reduction												
c.												
d.												
Subtotal Management Services:			6135	1357		2242		2299			12033	
Project Total Cost:			22808	16591		17093		10374			66866	
<div style="display: flex; justify-content: space-between;"> <span>Project D284</span> <span>Page 9 of 26 Pages</span> <span>Exhibit R-3 (PE 0604802A)</span> </div>												

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BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>D613</b>		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D613 Mortar Systems	9369	9140	10181	0	6792	7872	30459	30804	Continuing	Continuing
<p><b>A. <u>Mission Description and Budget Item Justification:</u></b> This program provides funds to develop existing and emerging technology to enhance the effectiveness, lethality, versatility of use, mobility, and accuracy of mortar systems. Current mortar systems include conventional ammunition with a variety of fuzing and applications, weapons that range from man-portable 60mm to vehicle-mounted 120mm mortars, and related equipment such as fire control, mortar ballistic computer, training devices, and ammunition. Funding for EMD of the digital Mortar Fire Control System (MFCS) is provided in FY 98-FY00. MFCS is a revolutionary improvement in mortar capability, seamlessly linking mortar fires in the future digital battlefield. MFCS provides an on-board fire control system that includes a fire control computer, position navigation system, and gun pointing system. MFCS allows mortar crews to set-up in one minute, down from the current eight minutes. Accuracy is increased by a factor of four. Shorter exposure times increase crew survivability. The MFCS is fully compatible with the Advanced Field Artillery Tactical Data System (AFATDS), making mortars an integral part of Force XXI and Army After Next (AAN) fire support network. This will increase situational awareness and reduce the probability of fratricide. Additional funding in FY2000 funds the development and test of a low-cost 60mm full range training round (XM769). This will decrease the cost of training while increasing safety and lowering environmental impact. FY2002 through 2005 provides for EMD of a Precision Guided Mortar Munition (PGMM). The PGMM will be a precision strike round using advanced sensors and guidance systems, extended range and enhanced lethal mechanism technology. It will be capable of a first round defeat of high value hard point targets such as bunkers and command and control centers. The capability to hit point targets in built up areas makes this especially valuable in Military Operations in Urban Terrain (MOUT) and Military Operations Other Than War /Stability and Support Operations (MOOT/SASO) situations. First round hit capability reduces the overall logistical burden, a critical goal for early entry forces.</p> <p><b>FY 1998 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>• 7605 Contractor software development and initiation of hardware integration</li> <li>• 28 Conducted user assessment</li> <li>• 1736 Support and management</li> </ul> <p>Total 9369</p> <p><b>FY 1999 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 6280 Continue contractor software development and hardware integration; provide units for Production Qualification Tests (PQT)</li> <li>• 1609 Support and management</li> <li>• 1009 Begin production qualification test (PQT)</li> <li>• 242 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs</li> </ul> <p>Total 9140</p>										
Project D613			Page 10 of 26 Pages			Exhibit R-2A (PE 0604802A)				

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<p><b>FY 2000 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 3420 Complete system and platform integration (MFCS)</li> <li>• 2180 Support and management (MFCS and XM731)</li> <li>• 250 Conclude PQT (MFCS)</li> <li>• 557 Conduct Operational Test (MFCS)</li> <li>• 561 Type Classify MFCS; test reports</li> <li>• 2160 Developmental engineering (XM769)</li> <li>• 703 Developmental tests/Operational tests (DT/OT) (XM769)</li> <li>• 350 Test hardware (Ammunition destructive tests) (XM769)</li> </ul> <p>Total        10181</p> <p><b>FY 2001 Planned Program:</b> Project not funded in FY 2001</p>																																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;"><b>B. Other Program Funding Summary</b></th> <th><u>FY 1998</u></th> <th><u>FY 1999</u></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th style="text-align: center;">To <u>Compl</u></th> <th style="text-align: center;">Total <u>Cost</u></th> </tr> <tr> <td>Other Procurement, Army: K99300 (MFCS)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3740</td> <td style="text-align: center;">12494</td> <td style="text-align: center;">35709</td> <td style="text-align: center;">35542</td> <td style="text-align: center;">38595</td> <td style="text-align: center;">39049</td> <td style="text-align: center;">40400</td> <td style="text-align: center;">205529</td> </tr> <tr> <td>Procurement, Ammunition, Army: E92200 XM731 60mm Full Range Practice Round</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2987</td> <td style="text-align: center;">3623</td> <td style="text-align: center;">3141</td> <td style="text-align: center;">3095</td> <td style="text-align: center;">3161</td> <td style="text-align: center;">Cont.</td> <td style="text-align: center;">Cont.</td> </tr> </table>										<b>B. Other Program Funding Summary</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>	Other Procurement, Army: K99300 (MFCS)	0	0	3740	12494	35709	35542	38595	39049	40400	205529	Procurement, Ammunition, Army: E92200 XM731 60mm Full Range Practice Round	0	0	0	2987	3623	3141	3095	3161	Cont.	Cont.																											
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Procurement, Ammunition, Army: E92200 XM731 60mm Full Range Practice Round	0	0	0	2987	3623	3141	3095	3161	Cont.	Cont.																																																											
<p><b>C. Acquisition Strategy:</b> The Mortar Fire Control System was approved as a two year Warfighting Rapid Acquisition Program (WRAP) effort. FY 1997 funds were realigned to this program from PE 0203758A (Horizontal battlefield Digitization) in FY 1997. FY 1998 WRAP funding was aligned to this PE in the FY 1998 DoD Appropriations Bill, at the Army's request. Development will be accomplished by the prime contractor (AlliedSignal Corp. of Teterboro, NJ) teamed with a number of subcontractors. Initial production, scheduled for FY 2000, is planned as an option to the development contract. The XM731 60mm full range practice round will be developed in house at TACOM-ARDEC, using the 120mm M931 program as a model. Components, which are common to other 60mm programs (shell body, fin, and propulsion system), will be provided as GFM to the Load, Assemble, and Pack (LAP) contractor.</p>																																																																					
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<b>D. Schedule Profile</b>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>																																																												
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## UNCLASSIFIED

## ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

DATE

February 1999

BUDGET ACTIVITY

**5 - Engineering and Manufacturing Development**

PE NUMBER AND TITLE

**0604802A Weapons and Munitions - Engineering  
Development**

PROJECT

**D613**

<b>D. Schedule Profile</b>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
First Unit Equipped (Heavy)						2Qtr			
<b>60 mm Full Range Practice Round XM769</b>									
Development engineering				Start 2Qtr	End 3Qtr				
Design Review				4Qtr					
Performance Test					1Qtr				
Type Classify					3Qtr				

Remark: The XM731 60mm Full Range Practice Round (FRPR) is a government in-house development program.

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ARMY RDT&E COST ANALYSIS (R-3)										DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>					PROJECT <b>D613</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Mortar Fire Control System</b>												
a.	Competitive Cost Plus Award Fee	Allied Signal Corp., Teterboro, NJ	10884	5800	Jun 9	3420	Jan 00	0	N/A	0	20104	20104
b.	MIPR	TACOM-ARDEC Picatinny Arsenal NJ	700	480	Jan 99	0	N/A	0	N/A	0	1180	1180
c.	MIPR	Other OGA	15	0	N/A	0	N/A	0	N/A	0	15	15
<b>XM769 60mm FRPR</b>												
e.	Project Order	ARDEC Picatinny Arsenal NJ		0		2160					2160	2160
Subtotal Product Development:			11599	6280		5580					23459	23469
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Mortar Fire Control System</b>												
d.	MIPR	TACOM-ARDEC Picatinny Arsenal NJ	1453	632	Jan 99	1100	Jan 00	0	N/A	0	3185	3195
e.	MIPR	TACOM-ACALA Rock Island Ill	243	154	Jan 99	200	Jan 00	0	N/A	0	597	597
f.	MIPR	PM Mortars Picatinny Arsenal NJ	392	438	Jan 99	350	Jan 00	0	N/A	0	1180	1180
g.	MIPR	Other OGA	224	50	Jan 99	100	Jan 00	0	N/A	0	374	374
<b>XM769 60mm FRPR</b>												
e.	In-house	PM Mortars Picatinny Arsenal NJ				240	Jan 00	0		0	240	240
SBIR/STTR				242							242	
Subtotal Support Costs:			2312	1516		1990					5818	5828
Remark: Because the XM731 is a training round only, the testing need only prove out that 1)the round is safe to use, and 2) the round accurately simulates the tactical round. Formal operational testing is greatly modified. Test hardware is for components that are common to other 60mm rounds. This will be procured by exercising options on existing production contracts.												
Project D613			Page 13 of 26 Pages					Exhibit R-3 (PE 0604802A)				

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## ARMY RDT&amp;E COST ANALYSIS (R-3)

DATE  
February 1999BUDGET ACTIVITY  
**5 - Engineering and Manufacturing Development**PE NUMBER AND TITLE  
**0604802A Weapons and Munitions - Engineering Development**PROJECT  
**D613**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Mortar Fire Control System</b>												
a.		TECOM	16	500	N/A	557	Jan 00	0	N/A	0	1073	1073
b.		TEXCOM	16	209	Jan 99	561	Jan 00	0	N/A	0	786	786
c.		OPTEC	50	300	Jun 99	250	Jan 00	0	N/A	0	600	600
<b>XM731 60mm FRPR:</b>												
d. Performance Text	MIPR	TECOM				703					703	703
e. Test Hardware	Options	Various				350					350	350
Subtotal Management Services:			82	1009		2421					3512	3512

Remark: Because the XM769 is a training round only, the testing need only prove out that 1) the round is safe to use, and 2) the round accurately simulates the tactical round. Formal operational testing is greatly modified. Test hardware is for components that are common to other 60mm rounds. This will be procured by exercising options on existing production contracts.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Mortar Fire Control System</b>												
d.	Time & Material	Robbins Gioia Corp Alexandria Va.	125	225	Jan 99	100	Jan 00	0	N/A	0	450	450
e.	Time & Material	BRTC	87	0	N/A	0					87	87
f.	Time & Material	Simulation Technology Inc Natick MA	164	110	Jan 99	90	Jan 00	0	N/A	0	364	364
<b>XM731 60mm FRPR: None</b>												
Subtotal Management Services:			376	335		190					901	901

Project Total Cost:			14369	9140		10181					33690	
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Project D613

Page 14 of 26 Pages

Exhibit R-3 (PE 0604802A)

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>D695</b>		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D695 XM982 Projectile	3382	5861	10387	15594	16106	23327	0	0	0	75610
<p><b>A. <u>Mission Description and Budget Item Justification:</u></b> The XM982 is an extended range Dual Purpose Improved Conventional Munition (DPICM) projectile which is an extended range 155mm artillery projectile. It will be compatible with all current and future 155mm artillery systems in the U. S. inventory. The XM982 will extend the range of the M198, M109A5, 155mm Paladin (M109A6), and the lightweight Howitzer to approximately 37 kilometers. The XM982 with the Modular Artillery Charge System (MACS) extends the Crusader range to 47 kilometers. Allowing greater stand-off from threats and faster defeat of potential threats increases survivability.</p> <p><b>FY 1998 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>• 582 Government support for engineering and developmental testing. Conducted Integrated Baseline Reviews (IBR) and System Requirements Review with contractor and established Integrated Product Teams (IPT)</li> <li>• 1100 Conducted Preliminary Design Reviews (PDR)</li> <li>• 600 Conducted preliminary Instrumentation and Guidance Designs</li> <li>• 1100 Conducted Systems Requirements and Design Reviews</li> <li>Total 3382</li> </ul> <p><b>FY 1999 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 2556 Continue government support for engineering, Integrated Product Team (IPT), developmental testing, and evaluation.</li> <li>• 1253 Continue design of projectile assembly. Build prototype sub-systems for evaluation</li> <li>• 661 Continue design of guidance and instrumentation systems, and simulations. Build prototype sub-systems for evaluation.</li> <li>• 1236 Continue development of system requirements and subsystem requirement allocation. Conduct laboratory and field testing and evaluation</li> <li>• 155 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs</li> <li>Total 5861</li> </ul>										
<div style="display: flex; justify-content: space-between;"> <span>Project D695</span> <span>Page 15 of 26 Pages</span> <span>Exhibit R-2A (PE 0604802A)</span> </div>										

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<p><b>FY 2000 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 3507 Continue government support for engineering, Integrated Product Team (IPT), engineering support for developmental testing</li> <li>• 3410 Continue design of projectile assembly. Build prototype sub-systems for evaluation</li> <li>• 1214 Continue design of guidance and instrumentation systems, and simulations. Build prototype sub-systems for evaluation</li> <li>• 2256 Continue development of system requirements and subsystem requirement allocation. Conduct laboratory and field testing and evaluation</li> </ul> <p>Total 10387</p> <p><b>FY 2001 Planned Program:</b></p> <ul style="list-style-type: none"> <li>• 9114 Continue government support for engineering, Integrated Product Team (IPT), engineering support for development testing. Conduct Critical Design Reviews (CDR). Conduct platform integration program</li> <li>• <b>Contract:</b> <ul style="list-style-type: none"> <li>2462 Complete design of projectile assembly. Build prototype subsystems for evaluation. Support CDR</li> <li>372 Complete design of guidance and instrumentation systems. Build prototype subsystems for evaluation. Support CDR</li> <li>3646 Complete development of system requirements and subsystem requirement allocation. Conduct laboratory and field testing and evaluation. Conduct simulation validation. Support CDR</li> </ul> </li> </ul> <p>Total 15594</p>																																																					
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<b>B. Other Program Funding Summary</b>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>																																											
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Procurement Ammunition, Army: E80100							27780	30768	Cont.	Cont.																																											
<p><b>C. Acquisition Strategy:</b> The approved Acquisition Strategy was to award the EMD contract (FY98-01) to a systems contractor through full and open competition utilizing formal source selection. As a result of this strategy, a contract was awarded to Raytheon-TI Systems, Inc., Lewisville, TX on 23 January 1998 for the design, development, fabrication, and engineering services in support of the development and testing of the 155MM ER DPICM XM982 Projectile. Two low rate production fixed price ceiling price options were also included in the award for the first year's buy of 3,400 each and the second year's buy of 4,900 each.</p>																																																					
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<b>D. Schedule Profile</b>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>																																											
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[illegible]

\*Denotes a completed milestone

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ARMY RDT&E COST ANALYSIS (R-3)										DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>					PROJECT <b>D695</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Projectile & DPICM Payload Development	C/CPiF	Raytheon Texas Instruments Systems, Dallas, TX	2800	3150	Jan 99	6880	Oct 99	6480	Oct 00	13500	32810	32810
a. Platform Integration	MIPR	ARDEC, Picatinny Arsenal, NJ		200	Nov 98	116	Nov 99	3560	Nov 00	8933	12809	
Subtotal Product Development:			2800	3350		6996		10040		22433	45619	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
b. XM982	Allot	PM ARMS	232	600		600		600		989	3021	
c. Gov't Engineering	MIPR	ARDEC, Picatinny Arsenal, NJ	350	1314	Oct 98	2191	Oct 99	4004	Oct 00	9411	17270	
d. SBIR/STTR				155							155	
Subtotal Support Costs:			582	2069		2791		4604		10400	20446	
II. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TECOM Texting	MIPR	YPG, Yuma, AZ		442	Nov 98	600	Oct 99	950	Oct 00	6600	8592	
Subtotal Support Costs:				442		600		950		6600	8592	
IV. Management Services: Not applicable												
Project Total Cost:			3382	5861		10387		15594		39433	74657	
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> <span>Project D695</span> <span>Page 18 of 26 Pages</span> <span>Exhibit R-3 (PE 0604802A)</span> </div>												

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DAS1 Small Arms Improvement	1427	0	2469	3062	3187	6716	14964	10842	Continuing	Continuing
<p><b>A. <u>Mission Description and Budget Item Justification:</u></b> This project addresses the modernization of existing Small Arms Weapon systems. This program provides funds to develop existing and emerging technology to enhance lethality, target acquisition, fire control, training effectiveness, and reliability for small arms weapon systems and munitions. Current small arms include a variety of personal defense weapons (.38 caliber, .45 caliber; 9mm), individual weapons (5.56mm), crew-served weapons (5.56mm-40mm) and related equipment such as fire control, training devices, hand grenades and ammunition. Current efforts focus on improvements to the M249 Squad Automatic Weapon, M16/M4 Rifle, M203 Grenade Launcher, MK19 Grenade Machine Gun, M240B Medium Machine Gun, ammunition and hand grenades.</p> <p><b>FY 1998 Accomplishments:</b></p> <p style="margin-left: 40px;"><b><u>MK19 Modern Mount</u></b></p> <ul style="list-style-type: none"> <li>• 150 Preparation of procurement package</li> <li>• 730 Contract to fabricate test hardware samples</li> </ul> <p style="margin-left: 40px;"><b><u>MK19 Remote Platform</u></b></p> <ul style="list-style-type: none"> <li>• 100 Program planning and documentation</li> <li>• 40 Modeling and Simulation</li> <li>• 100 Requirement analysis and system specifications will be examined for implementation</li> <li>• 260 Prototype demonstrations</li> <li>• 22 Began preparation of Request for Proposal (RFP)</li> </ul> <p style="margin-left: 40px;"><b><u>MK19 Low Cost Training Ammunition</u></b></p> <ul style="list-style-type: none"> <li>• 25 Market Survey</li> </ul> <p>Total 1427</p> <p><b>FY 1999 Planned Program:</b> Project not funded in FY 1999</p> <p><b>FY 2000 Planned Program:</b></p> <p style="margin-left: 40px;"><b><u>Lightweight Tripod for Light Machine Gun</u></b></p> <ul style="list-style-type: none"> <li>• 280 Tripod Feature design (In House)</li> <li>• 180 Solicitation and evaluation of proposals</li> </ul>										
Project DAS1			Page 19 of 26 Pages			Exhibit R-2A (PE 0604802A)				

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE February 1999
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>		PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>  PROJECT <b>DAS1</b>
<b>FY 2000 Planned Program: (continued)</b> <u><b>M249 Rails/BIPOD/Handguard</b></u> <ul style="list-style-type: none"> <li>• 60 Contract award</li> <li>• 99 Procure Materials</li> <li>• 350 Prototype designs</li> </ul> <u><b>MK19 Remote Platform</b></u> <ul style="list-style-type: none"> <li>• 330 Complete and Release RFP; evaluate proposals</li> <li>• 770 Award EMD contract</li> </ul> <u><b>MK19 Modern Mount</b></u> <ul style="list-style-type: none"> <li>• 280 Conduct tests on hardware samples</li> <li>• 120 Prepare RFP and performance specifications</li> </ul> Total 2469		
<b>FY 2001 Planned Program:</b> <u><b>Lightweight Tripod for Light Machine Gun</b></u> <ul style="list-style-type: none"> <li>• 50 Contract award</li> <li>• 395 Design/fabricate prototype</li> <li>• 130 Test prototype</li> </ul> <u><b>M249 Rails/BIPOD/Handguard</b></u> <ul style="list-style-type: none"> <li>• 190 Fabricate prototype</li> <li>• 282 Developmental Tests</li> <li>• 105 Finalize Design</li> </ul> <u><b>M249 Machine Gun Barrel Life Extension Program</b></u> <ul style="list-style-type: none"> <li>• 40 Prepare and release RFP</li> <li>• 30 Evaluate proposals, award contract</li> <li>• 300 Contract execution, design and fabrication</li> <li>• 40 Technical data preparation</li> </ul> <u><b>MK19 Remote Platform</b></u> <ul style="list-style-type: none"> <li>• 600 Engineering and Manufacturing Development (EMD)</li> </ul> <u><b>MK19 Modern Mount</b></u> <ul style="list-style-type: none"> <li>• 620 Contract for production qualification hardware</li> <li>• 280 Test production qualification hardware</li> </ul> Total 3062		
Project DAS1		Page 20 of 26 Pages Exhibit R-2A (PE 0604802A)

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
<b>B. Other Program Funding Summary</b>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
WTCV, GZ1290, Squad Auto Wpn (MODS)	0	0	8326	10053	5486	4165	4904		52453	67008
WTCV, GZ2800, M16 Rifle MODS	4535	5227	7180	9685	2112	0	2452	2450	2100	2100
WTCV, GB3000, MK19 MODS	0	0	1980	586	0	0	3923	3920	29300	29300
WTCV, GZ1300, Med MG (MODS)	0	0	0	0	0	0	3040	3039	4500	10579
<b>C. Acquisition Strategy:</b> Primary strategy is to mature and finalize design, award RDTE hardware contracts, and test and evaluate system with ultimate goal of type classification and production award.										
<b>D. Schedule Profile</b>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<b>Lightweight Tripod for Light Machine Gun</b>										
Tripod Feature design (in-house)					2Qtr					
Solicitation					3Qtr					
Contract award						1Qtr				
Design/fabricate prototypes						2Qtr				
Test prototypes						4Qtr				
Fabricate test hardware							3-4Qtr			
Development Test								1-2Qtr		
Operational Test								2-3Qtr		
Type Classify								4Qtr		
<b>M249 Rails/BIPOD/Handguard</b>										
Award contract					2Qtr					
Procure materials					3Qtr					
Prototype designs					3-4Qtr					
Prototype fabrication						1-2Qtr				
Developmental Tests						2-3Qtr				
Final design						4Qtr				
Technical Tests							1 Qtr			
User Evaluation							1-2 Qtr			
Engineering Change Approval							2 Qtr			
Project DAS1										
Page 21 of 26 Pages										
Exhibit R-2A (PE 0604802A)										

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
<b>D. Schedule Profile</b>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<b>M249 RAM Improvement/Weight Reduction</b>										
Award contract									2 Qtr	
Procure materials									3 Qtr	
Prototype designs									3-4 Qtr	
Prototype fabrication										1-2 Qtr
Developmental Tests										2-3 Qtr
Final design										4 Qtr
<b>M249 MG Barrel Life Extension Program</b>										
Prepare and release RFP						1-2Qtr				
Receive proposals, evaluate, award contract						2-3 Qtr				
Contract execution, design/fabrication						3-4 Qtr	1-4 Qtr			
Technical Testing & Evaluation							4 Qtr	1 Qtr		
User Evaluation								1-2 Qtr		
Finalize design								2 Qtr		
Tech Data preparation						3-4 Qtr	1-4 Qtr	1-3 Qtr		
Approval of ECP								3 Qtr		
<b>M249 Low Cost Training Ammunition</b>										
Market Survey								1 Qtr		
Performance Specifications								2 Qtr		
Procurement Package								2-3 Qtr		
Concept Validation								3 Qtr		
Build hardware									1-2 Qtr	
DT/OT									3-4 Qtr	
Design refinement										1 Qtr
Build hardware										2 Qtr
Testing										3-4 Qtr
Milestone III/TC (Beyond FY 2005)										
<b>M203 Upgrade</b>										
Award contract(s)								2 Qtr		
Procure materials								1 Qtr		
Design in-house prototypes								1-3 Qtr		
Fabricate prototype system								3-4 Qtr	1 Qtr	

Project DAS1

Page 22 of 26 Pages

Exhibit R-2A (PE 0604802A)

## UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
<b>D. Schedule Profile</b>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Test prototype system									1-2 Qtr	
Redesign and fabricate system									3-4 Qtr	
<b>MK19 Modern Mount</b>										
Prepare solicitation and Concept Definition			4 Qtr	1 Qtr						
Contract award (test hardware samples)				2Qtr						
Test hardware samples					1-2Qtr					
Prepare solicitation, performance specifications					3-4Qtr					
Contract award						2Qtr				
Production qualification fabrication						3-4Qtr				
Testing-production qualification						4Qtr	1Qtr			
<b>MK19 Remote Platform</b>										
Program planning and documentation (FY98 c/o)			4 Qtr	1-4 Qtr						
Modeling & Simulation FY98 c/o)			4 Qtr	1-4 Qtr	1-2 Qtr					
Requirement Analysis & System Specification (FY98 c/o)			4 Qtr	1-4 Qtr	2Qtr					
RFP preparation and release (FY98 c/o)				4 Qtr	1-2 Qtr					
Proposal evaluation					2 Qtr					
EMD contract award					2 Qtr					
Design, Fabrication (EMD)						1-4Qtr	1Qtr			
Vehicle integration							2-4Qtr	1Qtr		
Technical testing								1-3Qtr		
Initial operational test and evaluation								2-3Qtr		
Type Classification								4Qtr		
<b>MK19 Stabilized Platform</b>										
Award contract									1-2 Qtr	
Design prototype									3 Qtr	
Fabricate prototype									4 Qtr	1 Qtr
Evaluate prototype										1-2 Qtr
Redesign system										3-4 Qtr
Fabricate second hardware iteration										4 Qtr
<b>MK19 Low Cost Training Ammunition</b>										
Market Survey (FY98 carryover)			4 Qtr							
Project DAS1										

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
<b>D. Schedule Profile</b>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<b>MK19 Self-Destruct Cartridge</b>										
Market Survey							1 Qtr			
Performance Specification							2-3 Qtr			
Small purchase							3 Qtr			
Technical evaluation							3 Qtr			
Contract award							4 Qtr			
Engineering, Manufacturing, Development								1-2 Qtr		
Validation Test								3 Qtr		
Contract option								4 Qtr		
Build hardware									1-2 Qtr	
Testing									3-4 Qtr	
Milestone III IPR										1 Qtr
<b>M240 Weight Reduction</b>										
Contract award								3 Qtr		
Design Review									1 Qtr	
Receive hardware									4 Qtr	
Test										2 Qtr
Report/ECP										3 Qtr
<b>M240 Improved MG Barrel</b>										
Contract award									3 Qtr	
Design Review										1 Qtr
Receive hardware										2 Qtr
Test										3 Qtr
Report/ECP										4 Qtr
<b>Lightweight Hand Grenade</b>										
Procurement Package									1 Qtr	
Contract award									2-3 Qtr	
Build hardware									4 Qtr	
Testing									4 Qtr	
Contract Option										1 Qtr
Performance Specification										2-3 Qtr
Build hardware										4 Qtr

Project DAS1

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>				PROJECT <b>DAS1</b>		
<b>D. Schedule Profile</b>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<b>Non-Toxic Ammo</b>										
Market Survey								1 Qtr		
Performance Specification								1-2 Qtr		
Procurement Package								2-3 Qtr		
Concept Validation								3 Qtr		
Contract award								4 Qtr		
Build hardware									1-2 Qtr	
DT/OT									3-4 Qtr	
Contract Option										1 Qtr
Manufacturing										2-3 Qtr

Project DAS1
Page 25 of 26 Pages
Exhibit R-2A (PE 0604802A)

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ARMY RDT&E COST ANALYSIS (R-3)										DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604802A Weapons and Munitions - Engineering Development</b>					PROJECT <b>DAS1</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Hardware Development	FP	Multi	1103			1175	Multi	1325	Multi	28366	31969	31969
Subtotal Product Development:			1103			1175		1325		28366	31969	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
b. Development	MIPR	ARDEC	1635			557	Multi	803	Multi	16251	19246	19246
c. ILS	MIPR	ACALA	34			40	Multi	65	Multi	1350	1489	1489
Subtotal Support Costs:			1669			597		868		17601	20735	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
d. DT	MIPR	TECOM	294			284	Multi	312	Multi	10130	11020	11020
e. OT	MIPR	OPTEC						85	Multi	4052	4137	4137
f. Human Engineering	MIPR	HEL	24			30	Multi	30	Multi	677	761	761
Subtotal Support Costs:			318			314		427		14859	15918	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PGM Management	ALLOT	PM SA	318			300	Multi	350	Multi	4728	5696	5674
b. Travel	ALLOT	PM SA	17			83		92		1350	1542	
Subtotal Management Services:			335			383		442		6078	7238	
Project Total Cost:			3425			2469		3062		66904	75860	75860
Project DAS1												
Page 26 of 26 Pages												
Exhibit R-3 (PE 0604802A)												